School Discipline and Racial Disparities in Early Adulthood

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Abstract

Despite interest in the role of school discipline in the creation of racial inequality, previous research has been unable to identify how students who receive suspensions in school differ from unsuspended classmates on key young adult outcomes. We utilize novel data to document the links between high school discipline and important young adult outcomes related to criminal justice contact, social safety net program participation, post-secondary education, and the labor market. We show that the link between school discipline and young adult outcomes tends to be stronger for Black students than for White students, and that inequality in exposure to school discipline accounts for approximately 30 percent of the Black-White disparities in young adult criminal justice outcomes and SNAP receipt.

^{*} Any opinions and conclusions expressed herein are those of the authors and not the U.S. Census Bureau. The Census Bureau has reviewed this data product for unauthorized disclosure of confidential information and has approved the disclosure avoidance practices applied to this release (Approval ID: CBDRB-FY2021-CES005-009). The authors are grateful to Renuka Bhaskar and Leah Clark for research assistance, and to Rachel Baker, Quentin Brummet, Greg Duncan, Paul Hanselman, and Erik Vickstrom for useful comments and discussions.

Substantial research highlights that Black students are more likely to be suspended and expelled than their White classmates (see, e.g., Barrett, McEachin, Mills, & Valant 2019; Office for Civil Rights 2016), a disparity that scholars argue exacerbates disparities in adult criminal justice contact (Wald and Losen, 2003). Recently, the connection between schools and the carceral system has been described as the school-to-prison nexus, where school discipline is a key axis of practices that normalize control and monitoring of people of color (Becker et al., 2017; Sojoyner, 2013). Despite these discussions, the degree to which students who experience school discipline experience worse outcomes in young adulthood is not well established, and the degree to which school discipline can explain racial disparities in early adulthood is unclear.

We utilize novel administrative data combining statewide education, criminal justice, and social safety net program participation data from Oregon with income information from the Internal Revenue Service (IRS) to elucidate the link between school discipline and key young adult outcomes. Specifically, we: 1) Describe the relationship between school discipline and young adult criminal justice contact, enrollment in post-secondary education and graduation from college, social safety net program utilization, and outcomes related to the labor market and poverty; 2) Examine whether the links between school discipline and these outcomes are particularly strong for Black and Hispanic students; and 3) Estimate the degree to which racial disparities in young adult criminal justice outcomes may be explained by differences in exposure to school discipline.

In doing so, we provide high-quality evidence documenting the importance of school discipline in shaping young adult outcomes. This has been a surprisingly difficult task, as research typically relies on student self-reports (Rosenbaum 2020), and high-quality administrative data recording student discipline rarely contain information about students' later life outcomes.

Recent working papers utilizing high-quality school discipline administrative records document

how principals (Bacher-Hicks, Billings & Deming 2019; Sorensen, Bushway, & Gifford 2020), teachers (Rose, Schellenberg, & Shem-Tov 2019), and police officers in schools (Sorensen, Shen, & Bushway 2020) can shape students' adult contact with the criminal justice system. Our novel data allow us to provide the most comprehensive, overview of the link between school discipline and young adult inequality and to condition on a detailed set of controls, such as family income, not typically observed in other administrative data.

Table 1 documents the strong link between experiencing school discipline and a variety of key early adult outcomes. We see in Panel A that, compared with non-disciplined students, high school students who were disciplined, which is defined as being suspended or expelled, are over twice as likely to be charged with a crime (15% vs. 6%), convicted of a crime (11% vs. 4%), and incarcerated (1.3% vs. 0.5%) by age 22; are approximately eleven percentage points more likely to have received Supplemental Nutrition Assistance Program (SNAP) benefits by age 26 (59% vs. 48%), seven percentage points less likely to pursue higher education (61% vs. 68%) and three percentage points less likely to graduate from college (13% vs. 17%) by age 23; were less likely to be employed (84% vs. 85%), earned approximately \$1,600 less at age 26, and were five percentage points more likely to have household incomes that were below the federal poverty line (19% vs. 24%) at age 27.

[Insert Table 1 about here.]

Panels B and C report the differences between disciplined and non-disciplined high school students by race and gender, allowing us to examine whether the link between school discipline and young adult outcomes is particularly salient for some groups of students. We find evidence that the link between school discipline and transition to adulthood outcomes varies significantly

by race and gender. Of particular note, we find that the link between school discipline and criminal justice contact is strongest for Black students.

Figure 1 examines the degree to which racial disparities in young adult outcomes can be linked to differences in school discipline. We report racial disparities for men and women separately, first controlling only for background characteristics (e.g., native language, household income during high school; labeled "Baseline"), then holding constant only out-of-school suspensions for insubordination, and finally accounting for a broad array of school discipline measures. Comparing racial disparities with and without accounting for these factors provides an indication of the degree to which racial disparities in, for example, the probability of being charged with a crime as a young adult can be traced back to differences in school discipline (see Online Supplement Tables S1 and S2 for model coefficients). As we are interested in understanding how disadvantages relative to White young adults may be traced back to school discipline differences (and not whether, for example, advantages in Asian students' degree attainment is attributable to school discipline), when a racial group does better on average on a particular outcome than Whites, we place the markers for this contrast at zero on the x-axis. To facilitate comparisons across our wide range of outcomes, Figure 1 divides the race gaps by the standard deviation of the relevant outcome.

[Insert Figure 1 about here.]

Results presented in Figure 1 highlight that Black young adults experience the largest disparities, and that approximately 30 percent of the gap between Black and White young adult criminal justice outcomes, SNAP participation, and BA receipt can be traced back to inequalities in school discipline. Simply accounting for out-of-school suspensions for insubordination reduces the Black-White disparity by approximately 10 percent, suggesting that there are

substantial gains in racial equity that could be attained by modifying school policies that link insubordination to suspensions. Although we find substantial inequality in young adult labor market outcomes, school discipline disparities appear to be less relevant for understanding racial differences in this domain. This suggests that other factors are likely to be important for understanding racial inequality in the labor market, and that to the degree that school discipline contributes to labor market disparities, it does so because the discipline penalty for Black students reported in Table 1 is particularly severe.

Taken together, our results highlight the important link between exposure to school discipline and a healthy transition to adulthood, while also underscoring that simply addressing school discipline gaps without attending to broader structural considerations reinforcing racial inequality outside of schools is insufficient for ameliorating racial disparities in adulthood.

Data and Methods Appendix

Our analyses utilize data from the Oregon Department of Education, Oregon court and Department of Correction records, Oregon Supplemental Nutrition Assistance Program (SNAP), and the IRS. To link records across these files, the US Census Bureau assigned unique person identifiers (protected identification keys or PIKs) to all relevant datasets (Wagner & Layne 2014). Using personally identifiable information (e.g., social security number, name, date of birth, address, and sex) available in the source file, we were able to assign PIKS to roughly 95 percent of the educational records, 73 percent of the court records, 97 percent of SNAP records, and nearly 99 percent of the IRS records.

Our education data contain detailed information about students' school discipline records, including in-school suspensions, out-of-school suspensions, expulsions, days disciplined, infraction type (e.g., insubordination, fighting), and any weapons that were involved (e.g., handguns, knives). The education data also include student demographic characteristics; indicators of student supplementary program participation (such as special education and English-language learner services); attendance; high school math, reading, writing, and science test scores; and higher education enrollment and degree data. We link these data with court records from Oregon containing information on arrest, conviction, and sentencing; information indicating Oregon SNAP receipt; and with IRS records containing information on employment status (i.e., the presence of a W2), earnings from employment (earnings summed across all W2's for an individual in the 2018 tax year), and a proxy for poverty status (whether household income as reported on IRS form 1040 in the 2019 tax year is below the federal poverty line). Income that is not reported to the IRS will not be included in these records. Likewise, contact with the criminal justice system or SNAP participation outside of the state of Oregon will not be included; as the likelihood of being present in Oregon post-high school does not vary significantly by exposure to discipline, we believe that this should not affect the results

presented in Table 1. However, as Black students are five percentage points more likely than White students to leave Oregon post-high school (21 percent vs 16 percent can be identified as living out of Oregon in a given year post-high school), our estimates of racial disparities using outcome data from Oregon (i.e., criminal justice contact and SNAP participation) may be understated.

We use these data to estimate Ordinary Least Squares regression models (i.e., Linear Probability Models for our dichotomous outcomes) taking the following general form:

Outcome_i =
$$\beta x_i + \theta_s + \varepsilon_i$$
, (1)

where x_i represents our independent variables, including receiving school discipline, gender, race, native language, economic disadvantage, attendance, gifted status, special education status, average standardized high school test scores (to avoid issues caused by incomplete data, we first standardized test scores within a given year, subject, and grade level, and then for each student we average all tests in a particular subject while they were in high school, and then average across their subject-specific average test scores), mid-year school change, and average IRS-reported household adjusted gross income during high school; θ_s are school fixed effects that index the high school in which students initially enrolled; and ε_i is an error term. As our models include school fixed effects, they can be interpreted as comparing students to their peers who began high school with them at the same school; estimates of the discipline penalties in Table 1 thus compare disciplined and non-disciplined students who began at the same high school, and the estimates of racial inequality depicted in Figure 1 compare students from different race groups to the White students with whom they started high school. We estimate heteroscedastic-robust standard errors that account for the clustering of students within schools.

In order to observe a wide range of students' young adult outcomes, we focus on members of the cohort beginning high school in the 2007-08 school year, the first year in which disciplinary data are available. To include students who may have moved to Oregon part way through high school, we include all 2007-08 ninth graders, 2008-09 tenth graders, 2009-10 11th graders, and 2010-11 12th graders in our analytic sample. The most recent year our outcome data are available vary by source. Our data on higher education outcomes are available through 2016, allowing us to examine whether students ever enroll in post-secondary education, and whether they complete a college degree in their first five years out of high school. We use court records from the state of Oregon to create outcome variables indicating whether a student is charged with, convicted of, or incarcerated for a crime between June of 2011 and when they turned 22. Our SNAP data allow us to examine whether students lived in a household that received SNAP between 2012 and 2018 (when they were 26). We use W2 data from the IRS to provide information on students' employment status (indicated by the presence of a W2 form) and wages from employment (summed across all W2s for an individual, and transformed using the inverse hyperbolic sine transformation) in 2018, when students were 26. To calculate our proxy for poverty we use IRS 1040 data on adjusted gross income and the number of people in the tax unit in 2019 (when students were age 27).

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Figures.

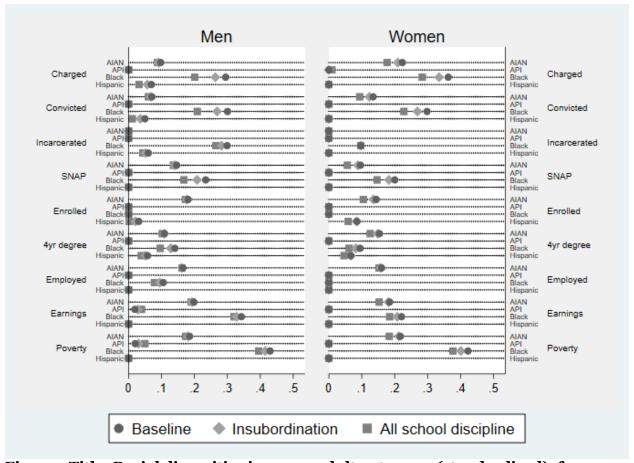


Figure 1 Title: Racial disparities in young adult outcomes (standardized), for men and women.

Figure 1 note: Figure 1 presents information on racial differences in young adult outcomes (relative to White students), separately for women and men. Each row reports the coefficients on different race/ethnicity indicators for different outcomes; to facilitate interpretation on a common scale we divide coefficient by the sex-specific standard deviation of the outcome variable. To enhance legibility, we report all outcomes with the same directionality (i.e., higher Black criminal justice contact and lower Black employment are both reported as being in the same direction), and as we are interested in understanding how the disadvantages experienced relative to White young adults may be traced to school discipline differences (and not whether, for example, advantages in Asian students' college degree attainment are attributable to school discipline), when a racial group does better on average on a particular outcome than Whites, we place the markers for this contrast at zero on the x-axis. The "Baseline" model (represented by circles) includes only controls for average IRS-reported household adjusted gross income during high school, native language, and school-reported economic disadvantage. The "Insubordination" models (represented by diamonds) add a control for out of school suspensions for insubordination. The "All school discipline" models (represented by squares) control for indicators of in-school suspension, out-ofschool suspension, expulsion, offense type, and weapons involved. Coefficients from models are reported in Tables S1 (men) and S2 (women); the above results are based on 40,000 students from the cohort entering high school in 2007-08.

Tables.
Table 1. Differences in Early Adult Outcomes by Exposure to School Discipline

	Criminal Justice			Safety Net	Higher Education		Labor Market		
-	Charged	Convicted	Incarcerated	SNAP	Enrolled	4yr degree	Employed	Earnings	Poverty
Panel A. Early Adu	ılt Outcome	es by School	Discipline						
Disciplined	0.146	0.110	0.013	0.590	0.614	0.134	0.835	\$19,240	0.240
Not Disciplined	0.057	0.039	0.005	0.475	0.683	0.168	0.851	\$20,790	0.187
Discipline Penalt	0.089 ^a	0.070 ^a	0.007 ^a	0.115 ^a	-0.069 ^a	-0.034 ^a	-0.016 ^a	-\$1,551 ^a	0.053 ^a
Panel B. Men's Di	scipline Pei	nalties by Ra	ce						
White	0.098^{a}	0.081 ^a	0.010 ^a	0.136 ^a	-0.080^{a}	-0.050 ^a	-0.024 ^a	-\$1,544ª	0.042^{a}
Black	0.169 ^{ab}	0.130^{a}	0.013	0.070 ^{ab}	0.008	0.023	-0.047	-\$3,329ª	0.108^{a}
Hispanic	0.127 ^{ab}	0.103 ^a	0.014 ^a	0.088 ^{ab}	-0.092a	-0.002	-0.007	\$365	0.042^{a}
AIAN	0.121 ^a	0.094^{a}	0.004	0.090^{a}	-0.062	0.007	0.016	-\$4,085	0.089
API	0.044 ^{ab}	0.046 ^a	0.006	0.043 ^b	-0.098 ^a	-0.094 ^a	0.023	\$2,229 ^b	0.020
Panel C. Women's	Discipline	Penalties by	Race						
White	0.060 ^a	0.043 ^a	0.001	0.133 ^a	-0.070 ^a	-0.050 ^a	-0.016	-\$2,985°	0.075 ^a
Black	0.157 ^{ab}	0.107 ^{ab}	0.000	0.048 ^b	0.033 ^b	-0.007 ^b	-0.046	-\$6,133 ^{ab}	0.188 ^{ab}
Hispanic	0.029 ^{ab}	0.028^{a}	0.002	0.063 ^{ab}	-0.054 ^a	0.001b	0.011	\$1,257b	0.059^{a}
AIAN	0.119^{a}	0.016	-0.001	0.030 ^b	0.001	0.047 ^b	0.028	-\$3,784	-0.062 ^b
API	0.055	0.044	-0.001	0.037	-0.147 ^a	-0.131 ^{ab}	0.022	\$2,945 ^b	-0.014

Note: Table 1 includes results from different Ordinary Least Square (OLS) regression models. The columns represent different young adult outcomes for Oregon high school students in the cohort that began high school in the 2007-2008 school year. Superscripts "a" indicate that coefficients are statistically significantly different from zero (p<.05); Superscripts "b" (Panels B and C only) indicate that the coefficient is statistically significantly different from the analogous coefficient for White students in that panel (p<.05). Panel A reports the predicted probabilities for students who were not exposed to school discipline (row one), students who were exposed to school discipline (row two), and the difference between students who were and were not disciplined, which we refer to as the discipline penalty (row three). The predicted probabilities are obtained using the sample mean of the non-school discipline covariates. Panel B reports the coefficient on discipline penalty for different race/ethnicity groups for men (i.e., the difference between students of a particular group who were and were not disciplined, which is obtained by taking the sum of the coefficient for the main effect of discipline exposure and the relevant coefficient for the interaction between indicators for race/ethnicity and an indicator for school discipline. Panel C reports the same results as in panel B but for women instead of men. The criminal justice contact variables indicate any adult charge, conviction, or incarceration between the end of their senior year and age 21. The higher education variables indicate whether students ever enrolled in higher education and ever received a four-year college degree as of 2016 (five years post-high school). Social safety net outcomes provide information regarding whether the student lived in a household that received SNAP between 2012 and 2018. We use the presence of a W2 to indicate employment (measured in 2018), and sum earnings from employment across all W2s the individual received in 2018. Results for earnings were estimated on the inverse hyperbolic sine of earnings; we transform results back into dollars for reporting purposes. Our proxy for poverty status examines whether IRS-reported household income for 2019 was below the federal poverty level. The above results are based on 40,000 students in the cohort that began high school in the 2007-08 school year. All models include controls for average IRS-reported household adjusted gross income during high school, average standardized test scores, special education status, gifted status, economic disadvantage status, native language, absences, mid-year school changes, and cohort; models reported in Panel A additionally include controls for race and gender.

Online Table S1. Differences in Early Adult Outcomes for Men by Exposure to School Discipline

School Discipline										
	Criminal Justice			Safety Net	Higher Education		Labor Market			
	Charged	Convicted	Incarcerated	SNAP	Enrolled	4yr degree	Employed	Earnings	Poverty	
	SD=.319	SD=.283	SD=.117	SD=.500	SD=.493	SD=.313	SD=.371	SD=1.179	SD=.405	
Panel A. Racial Disparities without Accounting for School Discipline										
Black	0.094°	0.085°	0.035°	0.117 ^a	0.039°	-0.044 ^a	-0.039 ^a	-0.404 ^a	0.174 ^a	
Hispanic	0.022^{a}	0.014	0.007	-0.040 ^a	-0.015	-0.018 ^a	0.057 ^a	0.051	-0.020	
AIAN	0.031	0.020	-0.009	0.073 ^a	-0.089 ^a	-0.034 ^a	-0.061 ^a	-0.234 ^a	0.075°	
API	-0.059 ^a	-0.047 ^a	-0.005 ^a	-0.116 ^a	0.171 ^a	0.105°	0.03 ^a	-0.022	0.008	
Panel B. Racial Disparities after Accounting for Out-of-School Suspensions for Insubordination										
Black	0.084 ^{ab}	0.076 ^{ab}	0.033 ^{ab}	0.104 ^{ab}	0.052 ^{ab}	-0.040 ^{ab}	-0.035 ^{ab}	-0.387 ^{ab}	0.168 ^{ab}	
Hispanic	0.018 ^{ab}	0.010 ^b	0.006 ^b	-0.045 ^{ab}	-0.010 ^b	-0.016 ^{ab}	0.059 ^{ab}	0.059 ^b	-0.022 ^{ab}	
AIAN	0.029	0.019	-0.009	0.070^{a}	-0.087 ^a	-0.034 ^a	-0.060 ^a	-0.227 ^a	0.073^{a}	
API	-0.052 ^a	-0.041 ^{ab}	-0.004 ^b	-0.108 ^{ab}	0.163 ^{ab}	0.103 ^{ab}	0.028 ^b	-0.033 ^b	0.012 ^b	
Panel C. Racial Disparities after Accounting for School Discipline										
Black	0.064 ^{ab}	0.059 ^{ab}	0.031 ^{ab}	0.084 ^{ab}	0.071 ^{ab}	-0.030 ^{ab}	-0.029 ^{ab}	-0.377 ^{ab}	0.160 ^{ab}	
Hispanic	0.010^{b}	0.003 ^b	0.005 ^b	-0.055 ^{ab}	-0.001 ^b	-0.012 ^{ab}	0.060 ^{ab}	0.065 ^{ab}	-0.025 ^{ab}	
AIAN	0.028	0.017	-0.009	0.068 ^a	-0.085 ^a	-0.032 ^a	-0.060 ^a	-0.224 ^a	0.070 ^a	
API	-0.038 ^{ab}	-0.029 ^{ab}	-0.002 ^b	-0.089 ^{ab}	0.148 ^{ab}	0.095 ^{ab}	0.024 ^b	-0.046 ^b	0.020 ^b	

Note: Table S1 includes results from different Ordinary Least Square (OLS) regression models. The columns represent different outcomes of interest. The rows report the coefficients on different race/ethnicity indicators (the omitted category is White). Superscripts "a" indicate that coefficients are statistically significantly different from zero (p<.05); Superscripts "b" (Panels B and C only) indicate that the coefficient is statistically significantly different from the analogous coefficient in Panel A (p<.05). The OLS specifications in all panels include controls that account for average IRS-reported household adjusted gross income during high school, native language, and economic disadvantage. Panel A reports the coefficients on different race/ethnicity indicators without controlling for school discipline exposure, Panel B reports estimates from modes that account for out of school suspensions for insubordination, and Panel C reports estimates from models that account for a broader set school discipline exposure measures (indicators of in-school suspension, out-of-school suspension, expulsion, offense type, weapons involved. Results for earnings were estimated on the inverse hyperbolic sine of earnings. The above results are based on roughly 25,500 men from the cohort entering high school in 2007-08; as Black students are five percentage points more likely than White students to leave Oregon post-high school (21 percent vs 16 percent can be identified as living out of Oregon in a given year post-high school), our estimates of racial disparities using outcome data from Oregon (i.e., criminal justice contact and SNAP participation) may be understated.

Online Table S2. Differences in Early Adult Outcomes for Women by Exposure to School Discipline

	Criminal Justice			Safety Net	Higher Education		Labor Market			
	Charged	Convicted	Incarcerated	SNAP	Enrolled	4yr degree	Employed	Earnings	Poverty	
	SD=.215	SD=.171	SD=.031	SD=.499	SD=.459	SD=.390	SD=.381	SD=1.191	SD=.414	
Panel A. Racial Disparities without Accounting for School Discipline										
Black	0.078^{a}	0.051 ^a	0.003	0.100a	0.007	-0.037 ^a	0.001	-0.263 ^a	0.175°	
Hispanic	-0.002	-0.006	0.000	-0.028 ^a	-0.039 ^a	-0.026 ^a	0.078 ^a	0.070^{a}	-0.055°	
AIAN	0.048^{a}	0.023 ^a	-0.001 ^a	0.048 ^a	-0.066 ^a	-0.060 ^a	-0.061 ^a	-0.220 ^a	0.090^{a}	
API	-0.003	-0.005	-0.001 ^a	-0.129°	0.089ª	0.144 ^a	0.039 ^a	0.091	-0.025	
Panel B. Racial Disparities after Accounting for Out-of-School Suspensions for Insubordination										
Black	0.072 ^{ab}	0.046 ^{ab}	0.003	0.091 ^{ab}	0.016 ^b	-0.032 ^{ab}	0.004 ^b	-0.247 ^{ab}	0.166 ^{ab}	
Hispanic	-0.002	-0.007	0.000	-0.028 ^a	-0.039 ^a	-0.026 ^a	0.078 ^a	0.071 ^a	-0.054 ^a	
AIAN	0.045^{a}	0.021	-0.001 ^a	0.044 ^a	-0.062 ^a	-0.058 ^a	-0.060 ^a	-0.216 ^a	0.088 ^a	
API	-0.002 ^b	-0.004 ^b	-0.001 ^a	-0.127 ^{ab}	0.087 ^{ab}	0.143 ^{ab}	0.039 ^a	0.088 ^b	-0.023 ^b	
Panel C. Racial Disparities after Accounting for School Discipline										
Black	0.061 ^{ab}	0.039 ^{ab}	0.003	0.073 ^{ab}	0.032 ^b	-0.024 ^b	0.009 ^b	-0.220 ^{ab}	0.156 ^{ab}	
Hispanic	-0.008 ^b	-0.010 ^{ab}	-0.001	-0.043 ^{ab}	-0.027 ^{ab}	-0.018 ^{ab}	0.079^{a}	0.085 ^{ab}	-0.063 ^{ab}	
AIAN	0.038 ^{ab}	0.016 ^b	-0.002 ^a	0.028 ^b	-0.048 ^b	-0.049 ^{ab}	-0.058 ^{ab}	-0.182 ^{ab}	0.076 ^{ab}	
API	0.002 ^b	-0.001 ^b	-0.001 ^a	-0.119 ^{ab}	0.081 ^{ab}	0.138 ^{ab}	0.036 ^{ab}	0.079 ^b	-0.017 ^b	

Note: Table S2 includes results from different Ordinary Least Square (OLS) regression models. The columns represent different outcomes of interest. The rows report the coefficients on different race/ethnicity indicators (the omitted category is White). Superscripts "a" indicate that coefficients are statistically significantly different from zero (p<.05); Superscripts "b" (Panels B and C only) indicate that the coefficient is statistically significantly different from the analogous coefficient in Panel A (p<.05). The OLS specifications in all panels include controls that account for average IRS-reported household adjusted gross income during high school, native language, and economic disadvantage. Panel A reports the coefficients on different race/ethnicity indicators without controlling for school discipline exposure, Panel B reports estimates from modes that account for out of school suspensions for insubordination, and Panel C reports estimates from models that account for a broader set school discipline exposure measures (indicators of in-school suspension, out-of-school suspension, expulsion, offense type, weapons involved. Results for earnings were estimated on the inverse hyperbolic sine of earnings. The above results are based on roughly 23,500 women from the cohort entering high school in 2007-08; as Black students are five percentage points more likely than White students to leave Oregon post-high school (21 percent vs 16 percent can be identified as living out of Oregon in a given year post-high school), our estimates of racial disparities using outcome data from Oregon (i.e., criminal justice contact and SNAP participation) may be understated.